



Jyothi
Engineering College
(AUTONOMOUS)

Reaccredited with NAAC (Grade A) and
NBA Programmes* (*CE, CS, EC, EE, ME, MR)
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A Centre of Excellence in Science and Technology by the Catholic Archdiocese of Trichur

B. TECH CURRICULUM – 2026

Semester I to VIII



(AUTONOMOUS)
CREATING TECHNOLOGY
LEADERS OF TOMORROW
ESTD 2002

Department of Mechatronics Engineering

Branch Code: MR

Recommended by BoS on 14-11-2025

Approved by Academic Council on 27-11-2025

(Reference: JEC/2025/AC/MOM/02/AC/02/A2)

VISION & MISSION OF THE INSTITUTE

VISION: To be a global leader in education, nurturing ethical professionals, fostering holistic excellence and sustainable societal impact.

MISSION

- Excellence in Education: Provide outcome-based and industry-relevant education that builds technical competence, innovation, and lifelong learning.
- Ethics and Values: Inspire integrity, empathy, and social responsibility to develop ethical and service-oriented professionals.
- Research, Innovation, and Entrepreneurship: Encourage creativity, research, and entrepreneurship for sustainable technological and economic growth.
- Holistic and Global Development: Promote all-round development, leadership, and global competence through collaboration and community engagement.

VISION & MISSION OF THE DEPARTMENT

VISION: To be a globally recognized centre of excellence in Mechatronics Engineering, developing ethical professionals who lead innovation in automation and intelligent systems for sustainable industrial and societal benefit.

MISSION

- To provide professional competency through outcome-based and industry-relevant education, integrating fundamental concepts of mechanical, electronics, and computing domains with lifelong learning.
- To instil ethical values, integrity, and social responsibility in future mechatronics engineers.
- To promote research, innovation, and entrepreneurship to address industry challenges sustainably through intelligent systems and automation.
- To foster holistic development, leadership, and global competence through multidisciplinary collaboration and community engagement.

PROGRAMME EDUCATIONAL OBJECTIVES

PEO 1	Graduates will exhibit strong fundamentals of electronics, electrical, mechanical, and computing domains to solve automation-related challenges.
PEO 2	Graduates will design innovative solutions using modern tools, pursuing higher studies, research, or entrepreneurship.
PEO 3	Graduates will demonstrate ethical leadership, social commitment, teamwork, and lifelong learning in global multidisciplinary environments.

PROGRAMME SPECIFIC OUTCOMES

PSO 1	Integrate principles of embedded systems and IoT, automation, and robotics to address challenges in manufacturing and service industries.
PSO 2	Analyse, design, and implement systems with ethical and sustainable practices for societal and industrial benefit.

PROGRAMME OUTCOMES

PO1	Engineering Knowledge: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop the solution of complex engineering problems
PO2	Problem Analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)
PO3	Design/Development of Solutions: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)
PO4	Conduct Investigations of Complex Problems: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8)
PO5	Engineering Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)
PO6	The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7)
PO7	Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)
PO8	Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.
PO9	Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences
PO10	Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.
PO11	Life-Long Learning: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

KNOWLEDGE AND ATTITUDE PROFILE (WK)

WK1	A systematic, theory-based understanding of the natural sciences applicable to the discipline and awareness of relevant social sciences.
WK2	Conceptually based mathematics, numerical analysis, data analysis, statistics and formal aspects of computer and information science to support detailed analysis and modelling applicable to the discipline.
WK3	A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline.
WK4	Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.
WK5	Knowledge, including efficient resource use, environmental impacts, whole-life cost, re-use of resources, net zero carbon, and similar concepts, that supports engineering design and operations in a practice area.
WK6	Knowledge of engineering practice (technology) in the practice areas in the engineering discipline.
WK7	Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the professional responsibility of an engineer to public safety and sustainable development.
WK8	Engagement with selected knowledge in the current research literature of the discipline, awareness of the power of critical thinking and creative approaches to evaluate emerging issues.
WK9	Ethics, inclusive behaviour and conduct. Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes.

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CUMULATIVE CREDITS

Cumulative credits for the entire B. Tech program is 170 credits

CREDIT ASSIGNMENT

[Ref: National Credit Framework – Sept 2022]

Course Delivery	Code	Hours per Week	Credit
Lecture	L	1	1
Tutorial	T	1	1
Practical	P	2	1
Hands on Project	H	3/4	1

CREDIT DISTRIBUTION: YEAR/SEMESTER WISE

Year	ODD Semester	Even Semester	Total credit
First	20	22	42
Second	25	24	49
Third	23	23	46
Fourth	18	12	30
Academic Credits			167
Student Activities			3
B Tech			170
B Tech with Honours			185
B Tech with Minor			185
B Tech with Minor and Honours			200

COURSE CATEGORY AND CREDIT DISTRIBUTION

Sl.	Course Category	Nomenclature	Credits	Number of Courses
1	Basic Science Courses	BS	21	6
2	Engineering Science Courses	ES	28	10
3	Humanities, Social Science and Management	HM	10	6
4	Programme Core Courses	PC	61	21
5	Programme Elective Courses	PE	20	6
6	Open Elective Courses/Industry Linked Elective Courses.	OE/IE	8	3
7	Project Work/Seminar/ Internship	PI	13	3
8	Skill Enhancement Courses	SE	3	3
9	Indian Knowledge System	IK	2	1
10	Health and Wellness	HW	1	1
11	Student Activities	SA	3	-
Total			170	60

COURSE TYPES AND ASSESSMENT PATTERN

Course Type	Nomenclature	Credits	Assessment pattern		
			CIE	ESE	Total
Workshop	PL	1	100	NA	100
Theory Course	TC	1/2/3/4	40	60	100
Lab Course	PL	2	50	50	100
Theory + Practical	TP	4	60	40	100
Theory + Project	PB	4	60	40	100
Project	PT	3, 4	50	50	100
Seminar	SR	2	100	NA	100
Skill Enhancement Courses.	SE	1	100	NA	100

SEMESTER I

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1BST121	BS	TC	Linear Algebra and Calculus	3	0	0	0	4.5	3	40	60	100
2	B	J1BSP132	BS	TP	Engineering Physics	3	0	2	0	5.5	4	60	40	100
3	C	J1ESP103	ES	TP	Algorithmic Thinking with Python	3	0	2	0	5.5	4	60	40	100
4	D	J1EST104	ES	TC	Engineering Mechanics	2	1	0	0	3.5	3	40	60	100
5	E	J1EST135	ES	TC	Introduction to Mechanical Engineering	4	0	0	0	6	4	40	60	100
6	F	J1HWP126 / J1HMP126	HW / HM	TP	Health and Wellness / Life Skills and Professional Communication	1	0	1	0	2	1	100	-	100
7	J	J1ESL137	ES	PL	Mechanical and Civil Engineering Workshop	0	0	2	0	1	1	100	-	100
8	S	J1SET109	SE	TP	Skill Enhancement Course	0	0	0	0	2	-			-
Total						16	1	7	0	30	20			700

SEMESTER II

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1BST221	BS	TC	Vector Calculus, Partial Derivatives and Transforms	3	0	0	0	4.5	3	40	60	100
2	B	J1BSP222	BS	TP	Engineering Chemistry	3	0	2	0	5.5	4	60	40	100
3	C	J1EST253	ES	TC	Introduction to Electronics Engineering	3	1	0	0	5	4	40	60	100
4	D	J1ESP104	ES	TP	Engineering Graphics and Computer Aided Drawing	2	0	2	0	4	3	60	40	100
5	E	J1EST205	ES	TC	Engineering Entrepreneurship and IPR	2	0	0	0	3	2	40	60	100
6	F	J1HMP126 / J1HWP126	HM / HW	TP	Life Skills and Professional Communication / Health and Wellness	1	0	1	0	2	1	100	-	100
7	G	J1MRT207	PC	TC	Transducers and Measurements	3	0	0	0	4.5	3	40	60	100
8	J	J1ESL127	ES	PL	Electrical and Electronics Engineering Workshop	0	0	2	0	1	1	100	-	100
9	S	J1SET109	SE	TP	Skill Enhancement Course	0	0	0	0	2	1	-	-	-
Total						17	1	7	0	31.5	22			800

SEMESTER III

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1BST321	BS	TC	Fourier Transforms and Complex Analysis	3	0	0	0	4.5	3	40	60	100
2	B	J1MRT302	PC	TC	Electrical Machines and Drives	3	1	0	0	5	3	40	60	100
3	C	J1MRZ303	PC	PB	Digital Electronics	3	0	0	2	6.5	4	60	40	100
4	D	J1MRP304	PC	TP	Mechanics of Solids	3	0	2	0	5.5	4	60	40	100
5	E	J1EST315	ES	TC	Introduction to Artificial Intelligence and Data Science	3	1	0	0	5	4	40	60	100
6	F	J1HMT436 / J1HMT346	HM	TC	Engineering Ethics and Sustainable Development / Economics for Engineers	2	0	0	0	3	2	40	60	100
7	J	J1MRL307	PC	PL	Electrical Technology Lab	0	0	3	0	1.5	2	50	50	100
8	K	J1MRL308	PC	PL	Analog and Digital Electronics Lab	0	0	3	0	1.5	2	50	50	100
9	S	J1SET3N9	SE	TP/TC	Skill Enhancement Course	1	0	0	0	1.5	1	100	-	100
Total						18	2	8	2	34	25			900

SEMESTER IV

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1MRT401	PC	TC	Microcontroller based System Design	2	1	0	0	3.5	3	40	60	100
2	B	J1MRT402	PC	TC	Mechanical Measurements and Metrology	3	0	0	0	4.5	3	40	60	100
3	C	J1MRZ403	PC	PB	Manufacturing Process	3	0	0	2	6.5	4	60	40	100
4	D	J1BSP434	BS	TP	Statistics and Numerical Methods	3	0	2	0	5.5	4	60	40	100
5	E	J1MRT4N5	PE	TC	Programme Elective -1	3	0	0	0	4.5	3	40	60	100
6	F	J1HMT346 / J1HMT436	HM	TC	Economics for Engineers / Engineering Ethics and Sustainable Development	2	0	0	0	3	2	40	60	100
7	J	J1MRL407	PC	PL	Microcontroller Lab	0	0	3	0	1.5	2	50	50	100
8	K	J1MRL408	PC	PL	Mechanical Engineering Lab	0	0	3	0	1.5	2	50	50	100
9	S	J1SET4N9	SE	TC/TP	Skill Enhancement Course	1	0	0	0	1.5	1	100	-	100
Total						17	1	8	2	32	24			900

SEMESTER V

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1MRT501	PC	TC	Linear Control Systems	2	1	0	0	3.5	3	40	60	100
2	B	J1MRT502	PC	TC	Mechanics of Machinery	2	1	0	0	3.5	3	40	60	100
3	C	J1MRZ503	PC	PB	Robotics	3	0	0	2	6.5	4	60	40	100
4	D	J1MRT504	PC	TC	Industrial Hydraulics and Pneumatics	3	0	0	0	4.5	3	40	60	100
5	E	J1MRP5N5	PE	TP	Programme Elective-2	3	0	2	0	5.5	4	60	40	100
6	F	J1IKT5N6	IK	TC	Indian Knowledge System (IKS)	2	0	0	0	3	2	40	60	100
7	J	J1MRL507	PC	PL	CAD Lab	0	0	3	0	1.5	2	50	50	100
8	K	J1MRL508	PC	PL	Instrumentation Lab	0	0	3	0	1.5	2	50	50	100
Total						15	2	8	2	29.5	23			800

SEMESTER VI

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1MRT601	PC	TC	Process Control and Instrumentation	3	0	0	0	4.5	3	40	60	100
2	B	J1MRT602	PC	TC	PLC and Data Acquisition System	2	1	0	0	3.5	3	40	60	100
3	C	J1EST6N3	ES	TC	Design Thinking and Product Development	2	0	0	0	3	2	40	60	100
4	D	J1MRP604	PC	TP	Autotronics	3	0	2	0	5.5	4	60	40	100
5	E	J1MRZ6N5	PE	PB	Programme Elective -3	3	0	0	2	6.5	4	60	40	100
6	F	J1XXO6N6 / J1XXI6N6	OE/IE	TC	Open Elective /ILE	2	0	0	0	3	2	40	60	100
7	J	J1MRL607	PC	PL	Mechatronics Systems and PLC Lab	0	0	3	0	1.5	2	50	50	100
8	K	J1MRD608	PC	PI	Mini Project	0	0	0	3	3	3	50	50	100
Total						15	1	5	5	29.5	23			800

SEMESTER VII

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1MRT7N1/ J1MRM7N1	PE	TC	Programme Elective-4/ MOOC /Self Study	3	0	0	0	4.5	3	40	60	100
2	B	J1MRT7N2/ J1MRM7N2	PE	TC	Programme Elective 5/ MOOC/ Self Study	3	0	0	0	4.5	3	40	60	100
3	C	J1XXO7N3/ J1XXI7N3/ J1XXM7N3	OE	TC	Open Elective- 2/ILE/MOOC/ Self Study	3	0	0	0	4.5	3	40	60	100
4	D	J1HMT7N4/ J1HMM7N4	HM	TC	HM-6 /MOOC/Self Study	2	0	0	0	3	2	40	60	100
5	E	J1HMT705/ J1HMM7N5	HM	TC	Constitution of India / MOOC/Self Study	1	0	0	0	1.5	1	40	60	100
6	J	J1MRQ706	PC	PI	Seminar	0	0	2	0	1	2	100	-	100
7	K	J1MRD707/ J1INT707	PC	PI	Project/Internship (4-6 Months)	0	0	0	16	16	4	100	-	100
Total						12	0	2	16	35	18			700

SEMESTER VIII

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1MRT8N1/ J1MRM8N1	PE	TC	Programme Elective 6/ MOOC/ Self Study	3	0	0	0	4.5	3	40	60	100
2	B	J1XXO8N2/ J1XXM8N2	OE	TC	Open Elective-3/ MOOC / Self Study	3	0	0	0	4.5	3	40	60	100
3	C	J1HMT8N3/ J1HMM8N3	HM	TC	HM-7 / MOOC/ Self Study	2	0	0	0	3	2	40	60	100
4	K	J1MRD804 / J1INT804	PC	PI	Project/ Internship (4-6 Months)	0	0	0	16	16	4	50	50	100
Total						8	0	0	16	28	12			400

APPENDIX-I- COURSE CATEGORY

(**TC** -Theory Course, **TP**, Theory course embedded with Practical's, **PB**-Theory course with project-based learning)

1.PROGRAMME CORE COURSES

Sl.	Semester	Course Code	Course Name	Course Type	Credits
1	S2	J1MRT207	Transducers and Measurements	TC	3
2	S3	J1MRT302	Electrical Machines and Drives	TC	3
3	S3	J1MRZ303	Digital Electronics	PB	4
4	S3	J1MRP304	Mechanics of Solids	TP	4
5	S4	J1MRT401	Microcontroller based System Design	TC	3
6	S4	J1MRT402	Mechanical Measurements and Metrology	TC	3
7	S4	J1MRZ403	Manufacturing Process	PB	4
8	S5	J1MRT501	Linear Control Systems	TC	3
9	S5	J1MRT502	Mechanics of Machinery	TC	3
10	S5	J1MRZ503	Robotics	PB	4
11	S5	J1MRT504	Industrial Hydraulics and Pneumatics	TC	3
12	S6	J1MRT601	Process Control and Instrumentation	TC	3
13	S6	J1MRT602	PLC and Data Acquisition System	TC	3
14	S6	J1MRP604	Autotronics	TP	4
15	S3	J1MRL307	Electrical Technology Lab	PL	2
16	S3	J1MRL308	Analog and Digital Electronics Lab	PL	2
17	S4	J1MRL407	Microcontroller Lab	PL	2
18	S4	J1MRL408	Mechanical Engineering Lab	PL	2
19	S5	J1MRL507	CAD Lab	PL	2
20	S5	J1MRL508	Instrumentation Lab	PL	2
21	S6	J1MRL607	Mechatronics systems and PLC lab	PL	2
Total Credits					61

2. PROGRAMME ELECTIVE

2.1 PROGRAMME ELECTIVE-1 (SEMESTER-IV)

Sl.	Slot	Subject Code	Subject	Category
1	E	J1MRT415	Introduction to Embedded and IoT	Stream Elective-1
2	E	J1MRT425	Metallurgy and Material Engineering	Stream Elective-2
3	E	J1MRT435	Object Oriented Programming	Stream Elective-3
4	E	J1MRT445	Industrial Instrumentation	Stream Elective-4
5	E	J1MRT455	Industrial Engineering	General Elective
6	E	J1MRT465	Statistical Quality Control	General Elective

2.2 PROGRAMME ELECTIVE-2 (SEMESTER-V)

Sl.	Slot	Subject Code	Subject	Category
1	E	J1MRP515	Embedded and IoT for Mechatronics Engineering	Stream Elective-1
2	E	J1MRP525	Design for Manufacturing	Stream Elective-2
3	E	J1MRP535	Numerical Computation using Python	Stream Elective-3
4	E	J1MRP545	Advanced Instrumentation	Stream Elective-4
5	E	J1MRP555	Ergonomics	General Elective
6	E	J1MRP565	Maintenance Engineering	General Elective

2.3 PROGRAMME ELECTIVE-3 (SEMESTER-VI)

Sl.	Slot	Subject Code	Subject	Category
1	E	J1MRZ615	Advanced IoT	Stream Elective-1
2	E	J1MRZ625	Advanced Manufacturing	Stream Elective-2
3	E	J1MRZ635	Machine learning	Stream Elective-3
4	E	J1MRZ645	Industrial Automation	Stream Elective-4
5	E	J1MRZ655	Entrepreneurship	General Elective
6	E	J1MRZ665	Power electronics	General Elective

2.4 PROGRAMME ELECTIVE-4 (SEMESTER-VII)

Sl.	Slot	Subject Code	Subject	Category
1	A	J1MRT711	Mobile Robotics	General Elective/MOOC
2	A	J1MRT721	Soft computing	General Elective/MOOC
3	A	J1MRT731	Automobile engineering	General Elective/MOOC
4	A	J1MRT741	MEMS	General Elective/MOOC
5	A	J1MRT751	Energy Management and Auditing	General Elective/MOOC
6	A	J1MRT761	Smart Manufacturing	General Elective/MOOC

2.5 PROGRAMME ELECTIVE-5 (SEMESTER-VII)

Sl.	Slot	Subject Code	Subject	Category
1	B	J1MRT712	Nano Electronics	General Elective/MOOC
2	B	J1MRT722	Six Sigma	General Elective/MOOC
3	B	J1MRT732	Fluid Mechanics and Machinery	General Elective/MOOC
4	B	J1MRT742	Theory of Metal cutting	General Elective/MOOC
5	B	J1MRT752	Signals and Systems	General Elective/MOOC
6	B	J1MRT762	Renewable Energy	General Elective/MOOC

2.6 PROGRAMME ELECTIVE-6 (SEMESTER-VIII)

Sl.	Slot	Subject Code	Subject	Category
1	A	J1MRT811	Bio mechatronics	General Elective/MOOC
2	A	J1MRT821	Hybrid and Electric vehicles	General Elective/MOOC
3	A	J1MRT831	Operations Management	General Elective/MOOC
4	A	J1MRT841	Dynamics and Machinery	General Elective/MOOC
5	A	J1MRT851	Digital Image Processing and Machine Vision	General Elective/MOOC
6	A	J1MRT861	Wireless and Sensors Networks	General Elective/MOOC

3. OPEN/INDUSTRY LINKED ELECTIVES

3.1 OPEN/INDUSTRY LINKED ELECTIVES (SEMESTER-VI)

Sl.	Slot	Subject Code	Subject	Category
1	F	J1MRO616	Transducers and Signal Conditioning	Open Elective
2	F	J1MRO626	PLC and Virtual Instrumentation	Open Elective

3.2 OPEN/INDUSTRY LINKED ELECTIVES (SEMESTER-VII)

Sl.	Slot	Subject Code	Subject	Category
1	C	J1MRO713	Introduction to Robotics	Open Elective
2	C	J1MRO723	Fundamentals of Hydraulics and Pneumatics	Open Elective

3.3 OPEN/INDUSTRY LINKED ELECTIVES (SEMESTER-VIII)

Sl.	Slot	Subject Code	Subject	Category
1	B	J1MRO812	Automotive Electronics	Open Elective
2	B	J1MRO822	Advanced Automation	Open Elective

4. HUMANITIES, SOCIAL SCIENCE AND MANAGEMENT

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S1/S2	J1HMP126	Life Skills and Professional Communication	TC	1
2	S3/S4	J1HMT346	Economics for Engineers	TC	2
3		J1HMT436	Engineering Ethics and Sustainable Development	TC	2
4	S7	J1HMT7N4/ J1HMM7N4	HM-6 / MOOC/ Self Study	TC	2
5		J1HMT714	Project Management: Planning, Execution, Evaluation and Control (HMC Elective)	TC	
6		J1HMM714	Proficiency course in French. (MOOC) (B1 level)	TC	
7		J1HMM724	Proficiency Course in German (B1 Level). (MOOC)	TC	
8		J1HMM734	Proficiency Course in Spanish (B1 Level) (MOOC)	TC	

9		J1HMM744	Introduction to Japanese Language and Culture (N5 level). (MOOC)	TC	
10	S7	J1HMT705/ J1HMM7N5	Constitution Of India/ MOOC/ Self Study	TC	1
11	S8	J1HMT8N3/ J1HMM8N3	HM-7 / MOOC/ Self Study	TC	2
12		J1HMT813	Organizational Behavior and Business Communication	TC	2
Total Credits					10

5. INDIAN KNOWLEDGE SYSTEM

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S5	J1IKT5N6	Indian knowledge system	TC	2
Total Credits					2

6. HEALTH AND WELLNESS

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S1/S2	J1HWP126	Health and Wellness	TP	1
Total Credits					1

7. BASIC SCIENCE COURSES

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S1	J1BST121	Linear Algebra and Calculus	TC	3
2	S1	J1BSP132	Engineering Physics	TP	4
3	S2	J1BST221	Vector Calculus, Partial Differential Equations and Transforms	TC	3
4	S2	J1BSP222	Engineering Chemistry	TP	4
5	S3	J1BST321	Fourier Transforms and Complex Analysis	TC	3
6	S4	J1BSP434	Probability, Statistics and Numerical Methods	TP	4
Total Credits					21

8. ENGINEERING SCIENCE COURSES

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S1	J1ESP103	Algorithmic Thinking with Python	TP	4
2	S1	J1EST104	Engineering Mechanics	TC	3
3	S1	J1EST135	Introduction to Mechanical Engineering	TC	4
4	S1	J1ESL137	Mechanical and Civil Engineering Workshop	PL	1
5	S2	J1ESP104	Engineering Graphics and Computer Aided Drawing	TP	3
6	S2	J1EST253	Introduction to Electronics Engineering	TC	4
7	S2	J1ESL127	Electrical and Electronics Engineering Workshop	PL	1
8	S2	J1EST205	Engineering Entrepreneurship and IPR	TC	2
9	S3	J1EST315	Introduction to Artificial Intelligence and Data Science	TC	4
10	S6	J1EST6N3	Design Thinking and Product Development	TC	2
Total Credits					28

9. SKILL ENHANCEMENT COURSES / ADD ON COURSES

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S1	J1SET109	Skill Enhancement Course	TP	-
	S2	J1SET109	Skill Enhancement Course	TP	1
2	S3	J1SET3N9	Skill Enhancement Course (Aptitude Proficiency-1)	TP/TC	1
3	S4	J1SET4N9	Skill Enhancement Course (Aptitude Proficiency-2)	TP/TC	1
4	S5		ADD ON Courses		P/F
5	S6		ADD ON Courses		P/F
Total Credits					3

APPENDIX-II ABBREVIATIONS

L	Lecture hours per week
T	Tutorial hours per week
P	Practical hours per week
H	Hands-on projects per week
S	Self-learning hours per week
PO	Programme Outcome
PSO	Programme Specific Outcome
PEO	Programme Educational Objective
WK	Knowledge and Attitude Profile
BS	Basic Science Courses
ES	Engineering Science Courses
HM	Humanities, Social Science and Management Courses
PC	Programme Core Courses
PE	Programme Elective Courses
PI	Project Work/Seminar/ Internship
IK	Indian Knowledge System
HW	Health and Wellness
SA	Student Activities
TC	Theory Course
PL	Practical Course
TP	Theory Course Embedded with Practical
PB	Theory Course Embedded with Micro projects
SE	Skill Enhancement Courses.